roceedings of
he United States
lational Museum

ITHSONIAN INSTITUTION • WASHINGTON, D.C.

olume 120 1967 Number 3563

MAR 2 1967
LIBRARY

SI
120
3563

EUPHILOMEDES ROSTRATA
A NEW MYODOCOPID OSTRACOD FROM MALDIVE ISLANDS, INDIAN OCEAN

By LOUIS S. KORNICKER

SMITHSONIAN PRESS

DEPOSITED BY THE
UNITED STATES OF AMERICA

Proceedings of
the United States
National Museum

SMITHSONIAN INSTITUTION • WASHINGTON, D.C.

Volume 120 1967 Number 356

EUPHILOMEDES AROSTRATA, A NEW MYODOCOPID OSTRACOD FROM MALDIVE ISLANDS, INDIAN OCEAN

By Louis S. Kornicker

Associate Curator, Division of Crustacea

While participating in the U.S. Program in Biology, International Indian Ocean Expedition, aboard the Stanford University Research Vessel *Te Vega*, the author obtained marine Ostracoda from the waters along the southwest coast of Ceylon and from among atolls forming the Maldive Islands. This paper describes a new species collected in the Maldives.

Field collecting was sponsored by the National Science Foundation through the Woods Hole Oceanographic Institution. I wish to thank Miss Caroline Bartlett and William Risley for preparing the illustrations. Through the courtesy of Dr. Gerhard Pretzmann of the Natural History Museum in Berlin, I was able to examine for comparative purposes specimens of *Philomedes polae* Graf from the Gulf of Suez.

Subfamily Philomedinae G. W. Müller, 1912

Genus *Euphilomedes* Poulsen, 1962

Philomedes (part), Müller, 1912.
Philomedes (part) Skogsberg, 1920.
Euphilomedes Poulsen, 1962.

Type-species: *Euphilomedes nodosa* Poulsen, 1962, by present designation.

GENERIC CHARACTERS.—Only a few additions need to be added to Poulsen's diagnosis of the genus (1962, pp. 359–361) to include the new species described herein.

Shell hingement of the genus was not discussed by Poulsen. *Euphilomedes arostrata* bears a tripartite hinge with strongly sclerotized posterior elements. Whether this character is present in all members of the genus is not known. Muscle scars consist of numerous oval or polygonal individual muscle scars located near, or anterior to, the middle of each valve.

Second antenna: Basal spines are not always present on exopodite. They are not present on *E. arostrata* and were also reported to be absent on *Euphilomedes oblonga* (Juday, 1907, p. 145) and *Euphilomedes multichelata* (Kornicker, 1959, p. 230).

Sixth limb: The end joint of *E. arostrata* is unusual because it is not produced posteriorly.

Frontal organ: Not noticeably widened at middle and with some surface spines near tip on appendage of male of *E. arostrata*. Surface spines also were reported on *Euphilomedes polae* (Graf, 1931, p. 37, fig. h).

OCCURRENCE.—Species of *Euphilomedes* have been reported from subtropical, tropical, and warm temperate regions (Poulsen, 1962, p. 359). The new species is the second reported from the Indian Ocean. *Euphilomedes debilis* (Brady, 1902) was previously reported from Trincomali on the northeast coast of Ceylon facing the Bay of Bengal.

Euphilomedes arostrata, new species

FIGURES 1–10

HOLOTYPE.—Gravid female described in this paper, USNM 112658 (figs. 1–4).

PARATYPE.—Male described in this paper, USNM 112659 (figs. 5–10).

TYPE LOCALITY.—A male and female were collected about 100 meters apart between Imma and Hura Islands, Male Atoll, Maldive Islands on March 20, 1964. Specimens were in sand obtained from upper surface of bottom in a patch of marine grass in one-third to one-half meters of water.

DIAGNOSIS.—*Euphilomedes* with four primary claws and seven to nine (possibly more) secondary claws. Second joint of exopodite of sixth limb not produced posteriorly. Hinge of shell terminating posteriorly in sclerotized angular process on each valve. Shell surface with irregular polygons and without lateral or posterior processes.

DESCRIPTION OF FEMALE.—Shell (figs. 1, 2): Oval in lateral view with greatest height near middle (fig. 1A); prominent rostrum; broad rostral incisure, with compressed posterior edge (fig. 1c). Anterior

margin of rostrum and anteroventral margin of shell with scalloped outline formed by crescent-like marginal denticulations. Shell surface with irregular polygons and normal pore canals; polygons containing pore canals smaller than average; about 23 polygons larger than average, hyaline, slightly in front of valve middle, representing locations of muscle attachments; hyaline, large, oval spot, with polygon border lies dorsal to hyaline polygons (fig. 2F). Anterior two-thirds of dorsal margin of valves hinged by transparent ligament following arcuate curvature of shell outline; posterior one-third with tripartite straight hinge. Hinge not affecting arcuate shell outline, but clearly visible in dorsal view and in lateral view when light is passed through closed shell. Posterior elements on each valve an angular sclerotized process (figs. 2A–E); left valve process containing a small forward-facing recess which apparently receives backward-projecting process of right valve (figs. 2B, C). Thin flap behind posterior process of left valve projecting medially, apparently resting on smooth, slightly depressed surface behind posterior process of right valve when shell is closed; upper surface of flap containing polygons similar to those on lateral surface of valves. Anterior hinge element less prominent than posterior; no tooth-and-socket arrangement observed. Medial hinge element of each valve consisting of straight bar without teeth. Surface of each valve above medial hinge element bearing two rows of minute tubercles or crenulations. Left valve broadly overlapping right along anterodorsal margin.

Thin sclerotized septum projecting downward from dorsal margin of each valve, starting near middle in front of anterior hinge element and terminating just behind posterior hinge element. Septum clearly visible in medial view at anterior and posterior hinge elements where it is set back from contact plane of valves; septum striated at anterior hinge elements. Several septa seem to be present in vicinity of anterior hinge element, especially on left valve.

Inner lamella (inner lamella, as used here, is peripheral part of chitin lining of epidermis) broad with vestibule, terminating at each end of dorsal ligament. Line of concrescence lies about halfway between inner and outer margin of inner lamella, closer to inner margin in anteroventral section, closer to outer margin in posterodorsal section. Marginal zone with simple, fairly closely spaced true and false radial pore canals. Selvage narrow, with wide, corrugated, lamellar prolongation having serrate outer edge and terminal spines (figs. 1F, 2G). List midway between selvage and inner margin of inner lamella; about ten striations between list and inner margin of anterior part of inner lamella (figs. 1G, H).

Hairs, flaring distally and with concave, cuplike ends abundant, protruding from normal pore canals (figs. 2G, H); short, tapered hairs

sparsely distributed over shell surface; long, tapered hairs, as well as flared hairs on lateral surface of shell near outer margins, appear to protrude from false radial pore canals. About 11 long, bifurcating hairs bearing secondary hairs form row on inner lamella behind rostrum (figs. 1D, E); a small tapered hair, immediately below rostral incisure, is followed by a space and then a bare hair on left valve, and three bare and two brushlike hairs on right valve; these are followed by a space and then 16 or 17 brushlike hairs, all having bases on or near list (figs. 1G, H); short, bare hairs are distributed between list and inner margin of posterior and posteroventral parts of inner lamella (figs. 2A, E).

DIMENSIONS.—Length 1.37 mm., height 0.92 mm.

First antenna (fig. 3A): First joint elongate with clusters of fine hairs on broad surface. Second joint about three-fourths length of first, with numerous fine hairs; annulated bristle near middle of dorsal margin; slightly shorter bristle near anteroventral corner; short bristle near middle of distal margin. Third joint about one-half length of second; anterodorsal margin with short, bare bristle and long plumose bristle; anteroventral margin with bare bristle about length of third joint; short spines on ventral margin. Fourth joint about twice length of third; anterodorsal margin with two long, slender bristles about length of joint, both bristles with short, fine hairs; anteroventral corner with about four bristles, two long, two short; ventral margin with short spines. Fifth joint slightly longer than third; anterodorsal corner bears slender bristle with short hairs. End joint (or joints) fused, with numerous bristles (ventral bristle may be attached to end of fifth joint).

Second antenna (figs. 3B–E): Exopodite: first joint about twice length of following joints combined; second to ninth joints trapezoidal, each joint smaller than preceding, all without basal spines; mediodistal margin of second to eighth joints with comb of slender spines; second to ninth joints with long bristles; bristles on second and third joints without natatory hairs, bristles on fourth to ninth joints with natatory hairs; bristles on second and third joints with short marginal spines, some spines also observed on bristles of fifth to ninth joints. End joint with five or six bristles; two long with natatory hairs, three or four short without hairs. Endopodite: two jointed; first joint with long bristle wreathed by long hairs and five short, bare bristles; second joint bears long bristle with two wreaths of long hairs, minute spine at distal end of joint.

Mandible (figs. 3F, H, I): Coxale endite bifurcate, with rows of slender spines. Basale: ventral margin with seven bristles; two long, distal bristles with wreaths of long hairs; five short, proximal bristles with short hairs. Dorsal margin with three bristles: two at distal corner;

one with long hairs, proximal to middle. Medial surface with six short bristles and spines proximal to middle. Exopodite reaches about middle of first endopodite joint; tip with point; two terminal bristles of about equal length, both with short hairs, but slightly longer hairs on proximal bristle. Endopodite: distoventral corner of first joint with one short, bare bristle and three long bristles with wreaths of long hairs. Second joint: dorsal margin with ten bristles; two long and two short proximal to middle; six at about middle, one of latter much shorter than rest. Ventral margin with five bristles: two bristles distal to middle; three bristles at distal corner, clawlike, with sharp secondary spines. End joint with two claws of about equal length and about three bare bristles. Medial surfaces of basale and second endopodite joint provided with hairs.

Maxilla (figs. 3G, J, K): Dorsal margins of precoxale and coxale with thin, transparent epipodial appendages fringed with long, fine hairs. Coxale with short, bare bristle on distal, dorsal margin. Basale: distal dorsal margin with long, stout bristle with wreaths of long hairs; distal ventral margin with shorter bristle with hairs; narrow, elongate lobe with terminal bristle with base on distal medial margin near posteroventral corner, terminal bristle reaching end of endopodite; base of exopodite on distal lateral margin. Exopodite bears three bristles: proximal short, bare; two terminal bristles extend past end of endopodite, one with long, other with short hairs distally. Endopodite: first joint elongate, with clusters of stiff hairs along anterior margin and medial surface; distal anterior margin bears long bristle with wreaths of long hairs; distal lateral margin bears three (?) bristles with short hairs. End joint with numerous bristles, all with secondary hairs or spines, some clawlike. Precoxale bears three endites: first with about nine bristles; second about seven; third about nine plus one short proximal bristle.

Fifth limb (figs. 4A–C): First exopodite joint: middle, distal, anterior margin with two bristles, both bear long hairs; distal, medial corner with short, bare bristle; triangular process in front of main tooth extends almost to tip of tooth. Main tooth composed of four constituent teeth: distal tooth, large, bifurcate; following tooth slender, with four secondary teeth; next tooth slender, with about nine secondary teeth; fourth tooth small, without secondary teeth. Bristle with hairs, proximal to fourth tooth. Second exopodite joint has large curved tooth with small marginal teeth on inner curvature, small spine near distal lateral corner.

Sixth limb (fig. 4D): Protopodite: first endite with long bristle bearing long, stiff hairs and two short bristles with fine hairs; second endite with one proximal and three distal bristles; third endite with eight distal bristles, all except shortest bristle bear stiff hairs, fourth endite

with one medial and eight distal bristles; epipodial appendage represented by two short bristles. Second joint of exopodite twice as broad as long; distal margin bears 17 bristles, 4 with long, thin hairs, remainder with one or two wreaths of stiff hairs; medial surface with fine hairs; unlike others in genus, joint not produced posteriorly.

Seventh limb (fig. 4E): Cleaning bristles: five in distal group, three dorsally, two ventrally; two (?) proximal bristles; each bristle with three or four bells; distal surface with short, closely spaced hairs. Terminal comb: simple distal tooth with three or four teeth on either side; these teeth have secondary teeth at base. Terminal pegs: two, one or both with short, marginal spines.

Furca (figs. 4F, G): Each lamella has 13 claws: primary claws number 1, 2, 7, 12; secondary claws 3, 4, 5, 6, 8, 9, 10, 11, 13. Primary claws 1 and 2 separated from lamella, 7 and 12 joined to lamella; secondary claws all separated from lamella. Primary claws decrease in length proximally on lamella; claw 12 unusually broad at base. Secondary claws 3, 4, 5, 6 about same length, shorter than claw 7, longer than claw 8; claws 8, 9, 10, 11 decrease in size proximally. Primary claw 12 shorter than secondary claw 11, longer than claw 13. Lamella near basis of claws 1 and 2 bears cluster of long hairs.

Claw number 1, right lamella: Posterolateral margin has row of about 24 teeth arranged in sets of two to four; teeth at distal part of claw generally shorter than teeth at midclaw. Central portion of medial surface bears two large teeth followed by about eight smaller teeth. Claw number 1, left lamella: posteromedial margin has row of about 24 teeth similar to row on posterolateral margin of claw number 1 of right lamella; similar row of about 29 teeth on posterolateral margin. Primary claws 2 and 7 have two rows of teeth, claw 12 has single row. Secondary claws: broad base; spines along anterior and posterior margins become progressively finer and longer on distal half.

Eyes: Medial eye with brown pigment in preserved material. Lateral eyes absent.

Frontal organ (fig. 4H): Two jointed, with suture proximal to middle; construction with faint suture, near proximal end; tip rounded, without hairs.

Upper lip (figs. 4I–K): Small, helmet shaped, with small, unpaired conical process on anterior part; lip and process bear hairs. Irregular protuberances occur between upper lip and frontal organ.

Eggs: Specimen contained about 10 oval eggs.

DESCRIPTION OF MALE.—Shell (figs. 5–7): Oval in lateral view with greatest height near middle, more elongate than shell of female (figs. 5A–E). Prominent rostrum and broad rostral incisure similar to female. Rostral anterior margin and shell anteroventral margin

have scalloped outline formed by crescent-like marginal denticulations. Shell surface with irregular polygons and normal pore canals (fig. 6D). Polygons having pore canals are smaller than average. Distribution of pore canals differs in males and females; males have fewer large canals through which large hairs pass and more small canals containing minute hairs. Large hyaline polygons interpreted as areas of muscle attachment on the female valve, less distinct on male valve. Oval hyaline area with polygon border distinct, located dorsal to hyaline polygons. Hinge elements of male identical to those of female (fig. 7).

Inner lamella broad with vestibule as in female, but narrower along ventral margin. Radial canals not observed in male. Line of concrescence not identified with certainty on male, but may lie just within inner margin of selvage. If so, marginal zone of male is much narrower than that of female. Selvage of male similar to that of female. List as well as striations on anteroventral part of inner lamella not observed on male.

Distribution of hairs differs on male and female: Hairs that flare distally and have concave tips less abundant than on female, restricted to anterior one-third of valve surface and to ventral margin (fig. 6C); minute tapered hairs apparently more abundant, more or less evenly distributed over valve surface. Long tapered hairs more abundant on posterior one-third, especially along posterior margin; also present along ventral and anterodorsal margins interspersed with flaring hairs. Single tapered hair located behind posterior hinge elements of left and right valves on both male and female. Normal pore canals from which hairs protrude located in polygons smaller than surrounding polygons. Polygons containing flared hairs generally bordered by five polygons; polygons with long tapered hairs by six polygons; polygons containing minute tapered hairs by only four polygons. Pore canals containing minute tapered hairs apparently smaller in diameter than pore canals with long tapered or flared hairs.

Ten long hairs on left valve and nine on right form row on inner lamella behind rostrum; not bifurcate like hairs similarly located on female shell (figs. 5F, G). Small bare hair located below rostral sinus in same position as on female. Row of 19 bare hairs on right valve and 21 on left on anterior part of ventral inner lamella; not brushlike as are similarly located hairs on female (figs. 5G, J). About 32 short, tapered hairs, more or less in two rows, on inner lamella extending from its posteroventral part to posterior hinge element (fig. 5H).

DIMENSIONS.—Length 1.00 mm., height 0.60 mm.

First antenna (fig. 8A): First joint without bristles; second joint with transverse rows of hairs along ventral margin and three bare bristles; third joint with one bare bristle on ventral margin and two bristles on dorsal margin; of these the shorter is bare, the longer has

wreaths of long hairs. Fourth joint weakly separated from third; dorsal margin with two long bristles, each with wreath of long hairs; distoventral corner with four long, bare bristles. Fifth joint small, inserted ventrally between fourth and sixth joints; sensory bristle with numerous thin filaments on broad base, two or three more distal short filaments and about four short terminal filaments. Sixth joint with one bare bristle distally. End joints bearing five slender bristles and two long, stout c- and f-bristles, each with about 12 short filaments. Broad surfaces of third joint and distal part of second joint with hairs.

Second antenna (figs. 8B–G): Exopodite: first joint elongate with small mediodistal spine; second joint about one-fourth length of first; third joint about twice length of second; distal margins of second to eighth joints with comb of short spines. First joint without bristle; bristle of second joint with marginal spines, reaching end of third joint; on left appendage only, second bristle provided with marginal spines on proximal part, natatory hairs on distal one-half (second bristle at this location atypical for family, and probably not present on all males of species). Bristles on joints 3–8 with natatory hairs, without marginal spines. End joint with one short, and three long, stout bristles, all with natatory hairs, and two short, slender bristles, the longer of these having hairs. Endopodite: 3-jointed; first joint with five short, bare bristles and one long, stout bristle having short hairs on distal one-half and wreath of long hairs near middle; second joint elongate with two long, slender bristles on margin near middle; third joint elongate, arcuate, with broadest part proximal to middle; two short, annulated bristles along convex margin, one near distal, other near proximal end; tip of third joint with short, curved nonannulate bristle and four or five serrate transverse ridges.

Mandible (figs. 9A, B): Coxale endite not observed. Basale: ventral margin with five short, slender, bare bristles and two long, stout bristles with wreaths of long hair; one of the slender bristles farther in from margin than others. Dorsal margin with two bristles at distal corner and one near middle, all bare. Medial surface with about five short bristles near proximoventral corner. Exopodite reaches middle of first endopodite joint; with two subequal bare terminal bristles, proximal bristle with few short hairs; tip of joint with blunt process provided with hairs. Endopodite: distoventral corner of first joint with one short, bare bristle and three long bristles with wreaths of long hairs. Second joint: Dorsal margin with proximal group of two and distal group of six bristles; one short bristle located on medial side between proximal and distal groups. Ventral margin with two bristles proximal to middle and three

bristles near distal corner. End joint with two claws of about equal length, one short claw, and three bare bristles. Medial surfaces of basale and second endopodite joint provided with hairs.

Maxilla (fig. 9C): About two-thirds size of female maxilla. Bristles seem more weakly developed than on female. Dorsal margin of precoxale and coxale with epipodial appendage fringed with long hair. Precoxale with several short bristles along distal margin. Long, stout bristle on dorsodistal margin of female not observed on male. Endopodite first joint elongate, with hairs along anterior margin. End joint with numerous bristles. Precoxale bears three endites provided with numerous bristles.

Fifth limb (figs. 9D, G, H): Endites and exopodite joints provided with numerous bristles; first and second exopodite joint with elongate, triangular process; outer lobe of third exopodite joint with two plumose bristles.

Sixth limb (fig. 9E): Protopodite: first endite with long, bare distal bristle and three short, medial bristles provided with hairs; second endite with one proximal and three distal bristles; third endite with two stout, plumose bristles and about five short, bare bristles; fourth endite with plumose proximal bristle and eight distal bristles; epipodial appendage represented by three short, bare bristles, bristles are followed by small bifurcated process. Second joint of exopodite not produced posteriorly; distal margin bears 15 bristles, all with hairs; medial surface, anterior and posterior margins with fine hairs.

Seventh limb (figs. 9F, H, I): Cleaning bristles: four in distal group, two dorsally, two ventrally; three proximal bristles; each bristle with one to four bells; surface hairs not observed on bristles. Terminal comb contains about nine teeth; some have short, marginal spines. Terminal pegs: two, one or both with short, marginal spines. Diameter of seventh limb about one-half that of female limb.

Furca (figs. 10A–E): Each lamella has 11 claws: primary claws 1, 2, 6, 10; secondary claws 3, 4, 5, 7, 8, 9, 11. Medial and lateral row of teeth on all primary claws. Claw number 1 contains 50 to 60 teeth on each side arranged in sets containing 4 to 7 teeth arranged on echelon. Secondary claws have spines along anterior and posterior edges. Medial side of lamella near bases of primary claws 1, 2, 6 bears clusters of hair.

Copulatory limb (figs. 10E, F): Long, slender, divided into three lobes having bristles; one lobe has large curved tooth.

Eyes (figs. 10G, H): Medial eye with brown pigment in preserved material. Large lateral eyes, each with about 19 ommatophores visible in lateral view; suture divides ommatophores into two parts.

Frontal organ: 2-jointed with minute spines or hairs at tip.

Upper lip: Small, helmet shaped. Irregular protuberances occur between upper lip and frontal organ.

COMPARISONS.—Other species of *Euphilomedes* having a furca with more than one secondary claw placed between two distally located primary claws and a third primary claw are *Euphilomedes multichelata* (Kornicker) (1959, p. 230), *Euphilomedes oblonga* (Juday) (1907, p. 145), *Euphilomedes* polae (Graf) (1931, p. 37).

Each furcal lamella of *E. arostrata* has four primary claws, but each lamella of both *E. multichelata* and *E. oblonga* has five. Polygons forming the shells of *E. arostrata* do not have the shingle-like texture of shells of *E. multichelata* and *E. oblonga*. The seventh limbs of the male of *E. arostrata* have three proximal bristles compared to only one on *E. multichelata* and *E. oblonga*.

Euphilomedes polae is closely related to *E. arostrata*. The two bristles on the second joint of the endopodite of the male of *E. arostrata* are longer and are located more proximally on the joint than the bristles on *E. polae;* the third joint of the endopodite of *E. arostrata* has one bristle at the distal end, whereas *E. polae* has two.

Graf designated two specimens, both females, captured in plankton of the Red Sea, as *Philomedes* species. Only the furca was described and illustrated. The distribution of primary and secondary claws on that appendage suggests close relationship with *E. arostrata*, but lack of knowledge of other appendages prevents further comparison. Specimens of *Euphilomedes polae* and *Philomedes* species were found in the same sample, so it is possible that *Philomedes* species is the female of *E. polae*.

The second exopodite joint of the sixth limb of *E. arostrata* differs from species of *Euphilomedes*, *Philomedes*, *Scleroconcha*, and *Paraphilomedes* in which that appendage has been described in not being produced posteriorly. Sixth limbs of species of *Euphilomedes* having a distribution of furcal claws similar to *E. arostrata* have not been described.

Literature Cited

BRADY, G. S.

1902. On new or imperfectly-known Ostracoda, chiefly from a collection in the Zoological Museum, Copenhagen. Trans. Zool. Soc. London, vol. 16, pt. 4, pp. 179–210, pls. 21–25.

GRAF, H.

1931. Expedition S.M.S. "Pola" in das Rote Meer: Die Cypridinidiae des Roten Meeres. Denkschr. Akad. Wiss. Wein. Math. Naturw. Klasse, vol. 102, pp. 32–46, figs. 1–10.

JUDAY, C.

1907. Ostracoda of the San Diego region, 2: Littoral forms. Univ. California Publ. Zool., vol. 3, no. 9, pp. 135–150, pls. 18–20.

KORNICKER, L. S.

1959. Ecology and taxonomy of recent marine ostracodes in the Bimini area, Great Bahama Bank. Publ. Inst. Marine Science, Univ. Texas, vol. 5 (1958), pp. 194–399, 89 figs.

MÜLLER, G. W.

1912. Ostracoda. *In* Das Tierreich. Preuss. Akad. Wiss., pt. 31, 434 pp., 92 figs.

POULSEN, E. M.

1962. Ostracoda-Myodocopa, Part 1 (Cypridiniformes-Cypridinidae), 414 pp. [Dana-Report No. 57.]

SKOGSBERG, T.

1920. Studies on marine ostracods, part 1 (Cypridinids, Halocyprids, and Polycopids). Zool. Bidr. Uppsala, suppl., vol. 1, 784 pp., 153 figs.

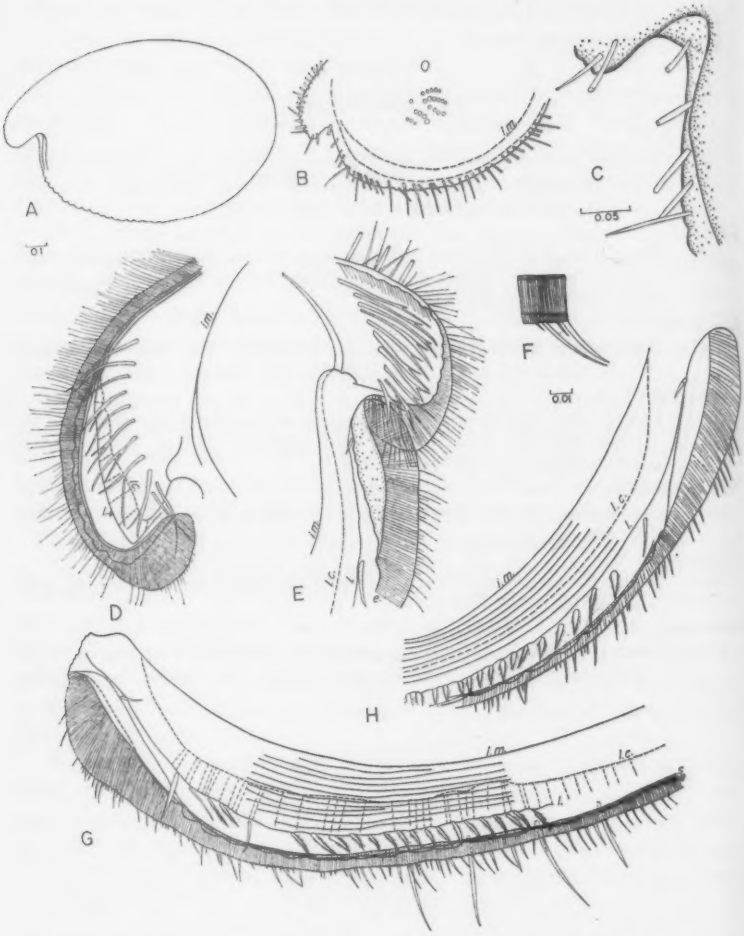


FIGURE 1.—*Euphilomedes arostrata*, new species, female: A, left lateral outline of complete specimen; B, lateral view left valve showing muscle spots and marginal hairs; C, lateral view left valve showing depressed area below antennal sinus; D, medial view rostrum right valve; E, medial view anterior left valve; F, detail posteroventral selvage right valve; G, medial view anteroventral part right valve margin; H, medial view anteroventral part left valve margin. (Same scale, in mm.: A, B; C, D, G, H; E, F. Key: i. m.= inner margin of lamella; l. c.=line of concresence; l.=list; e=edge of valve; s=selvage.)

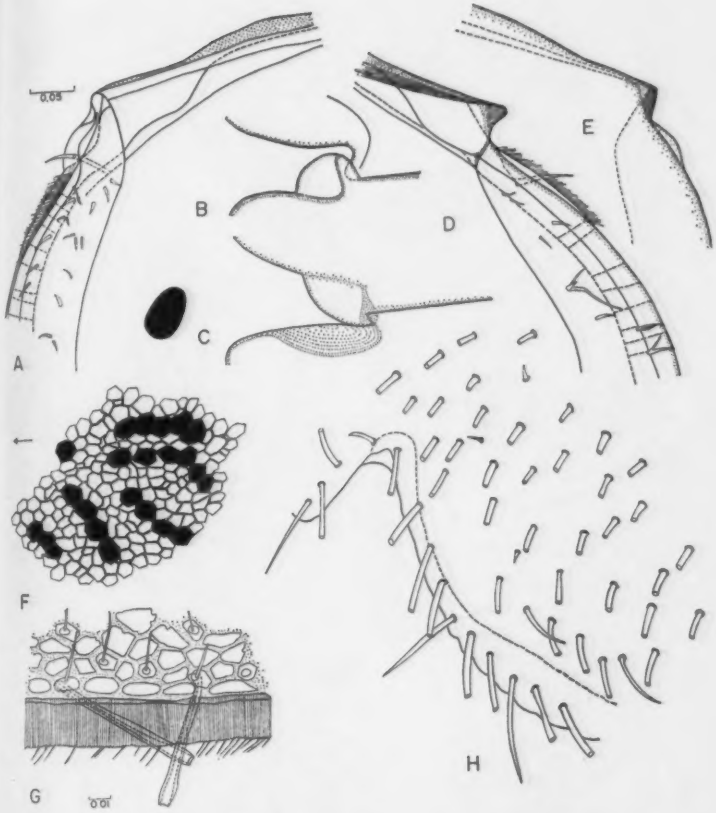


FIGURE 2.—*Euphilomedes arostrata*, new species, female: A, medial view left valve posterior hinge element; B, ventral view posterior hinge elements of partly open connected valves (posterior end of valves to left); C, dorsal view posterior hinge element of partly open connected valves (posterior end of valves to left); D, medial right valve posterior hinge element; E, lateral view left valve posterior hinge element; F, lateral view left valve muscle scars (anterior to left); G, medial view part of valve margin with calcium carbonate removed by dilute acid; H, lateral view anteroventral part of left valve showing distribution of surface hairs. (Same scale, in mm.: A–F, H; G.)

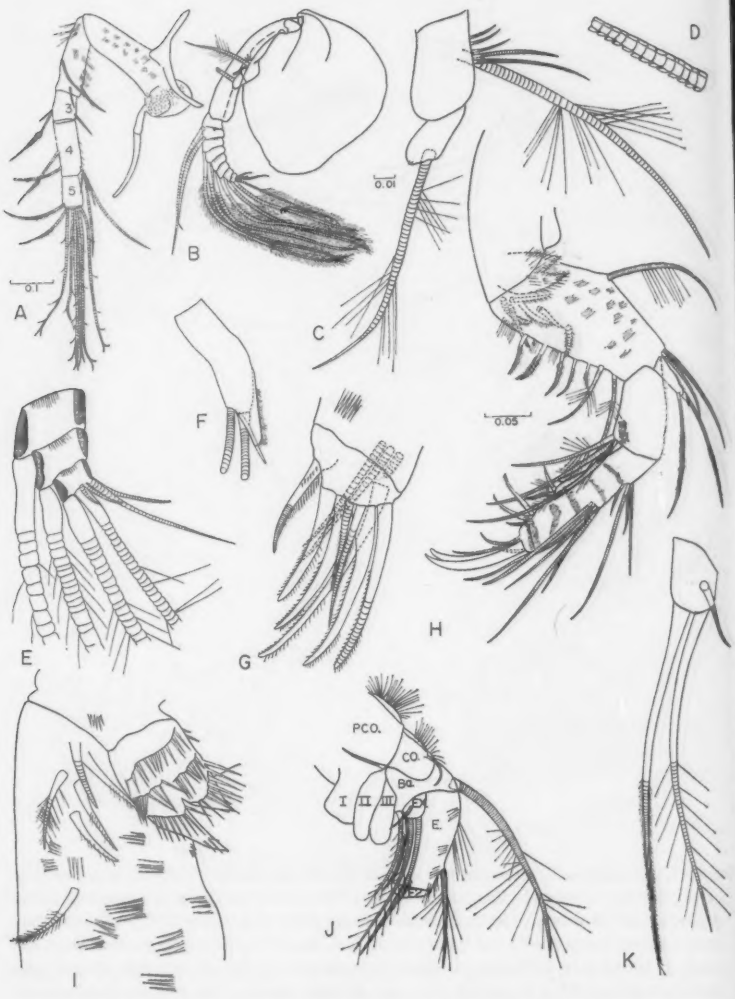


FIGURE 3.—*Euphilomedes arostrata*, new species, female: A, lateral view left 1st antenna with frontal organ and medial eye; B, medial view right second antenna; C, 2nd antenna endopodite; D, section of bristle on 3rd joint second antenna, outer edge on bottom; E, medial view end joints right second antenna; F, medial view left mandible exopodite; G, medial view distal end right maxilla; H, lateral view right mandible; I, medial view left mandible (marginal bristle of basal not shown); J, lateral view right maxilla (all bristles not shown); K, lateral view left maxilla exopodite, anterior to left. (Same scale, in mm.: A, B; C–G, I, K; H, J. Key: pco=precoxale; CO=coxale; Ba.=basale; Ex.=exopodite; E.=endopodite; I–III=endite joints.)

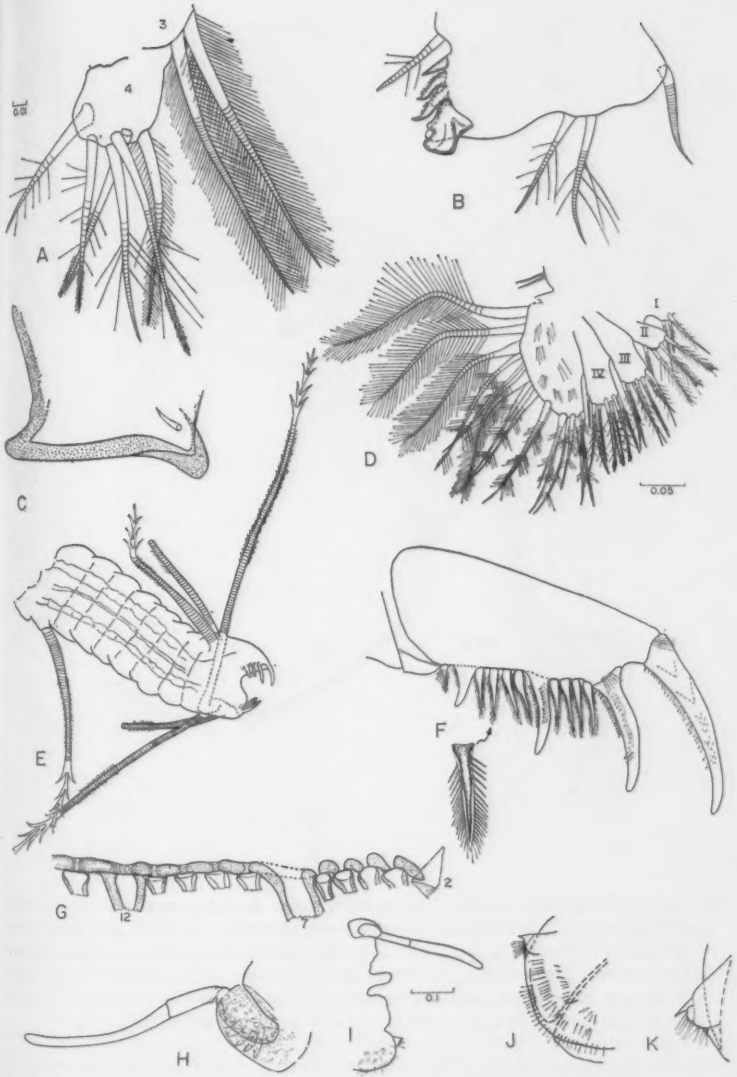


FIGURE 4.—*Euphilomedes arostrata*, new species, female: A, posterior view 4th joint and two lateral bristles of 3rd joint in 5th limb; B, posterior view 1st joint of left 5th limb (looking through part of 2nd joint); C, posterior view 2nd joint of right 5th limb (all bristles not shown); D, medial view left 6th limb; E, distal end 7th limb; F, lateral view right furca; G, detail of where claws 2–13 join lamella of right furca; H, frontal organ and median eye; I, profile from frontal organ to upper lip; J, profile of upper lip; K, detail of projecting process on upper lip. (Same scale, in mm.: A–C, E, G, K; D, F, H, J; I. Key: I–IV=endite joints.)

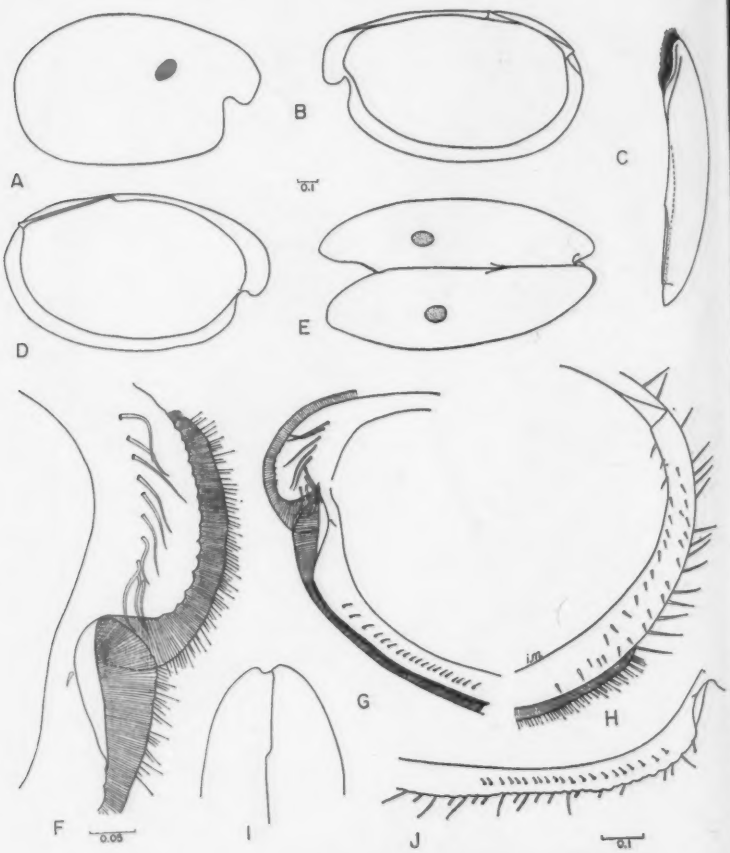


FIGURE 5.—*Euphilomedes arostrata*, new species, male: A, right lateral view of complete specimen showing right lateral eye; B, medial view right valve; C, dorsal view right valve; D, medial view left valve; E, dorsal view of partly open complete specimen; showing lateral eyes; F, anterior part left valve; G, anterior part right valve; H, posterior part right valve; I, dorsal view posterior part complete specimen; J, anterior ventral part left valve. (Same scale, in mm.: A–E, I, F; G, H, J. Key: i. m.=inner margin of lamella.)

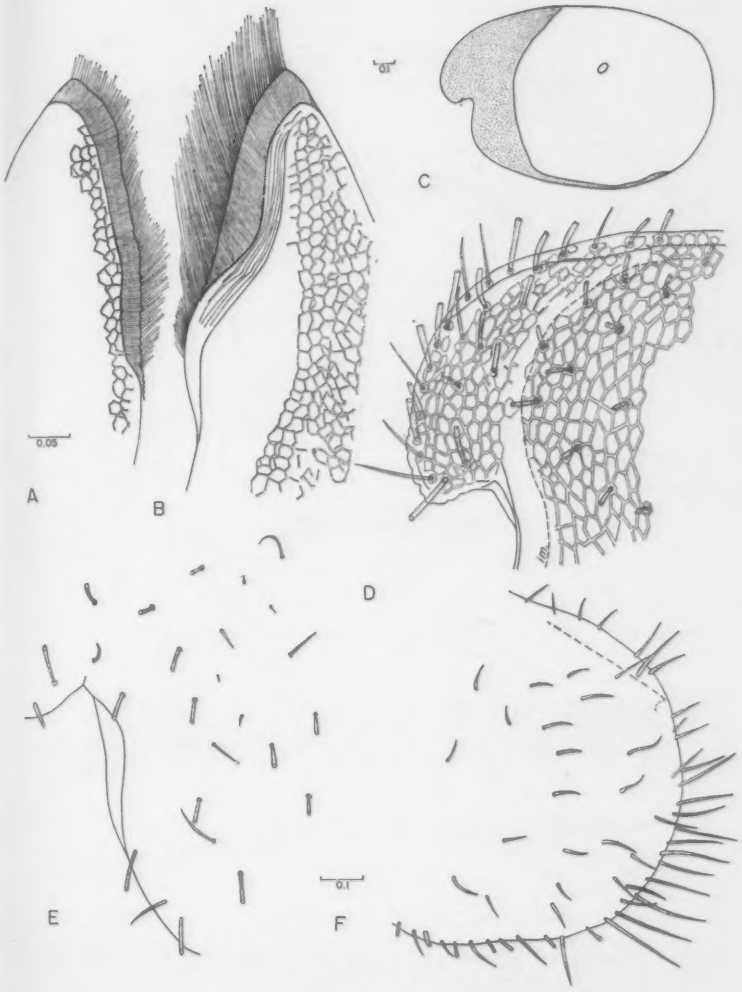


FIGURE 6.—*Euphilomedes arostrata*, new species, male: A, dorsal view anterior part left valve; B, dorsal view anterior part right valve; C, lateral view left valve with area bearing flared hairs stipled; small oval outlines lucid spot; D, medial view anterior dorsal part right valve showing distribution of hairs and polygons; E, lateral view anterior part left valve showing distribution of hairs; F, lateral view posterior part left valve showing distribution of hairs. (Same scale, in mm.: A, B, D, E; C; F.)

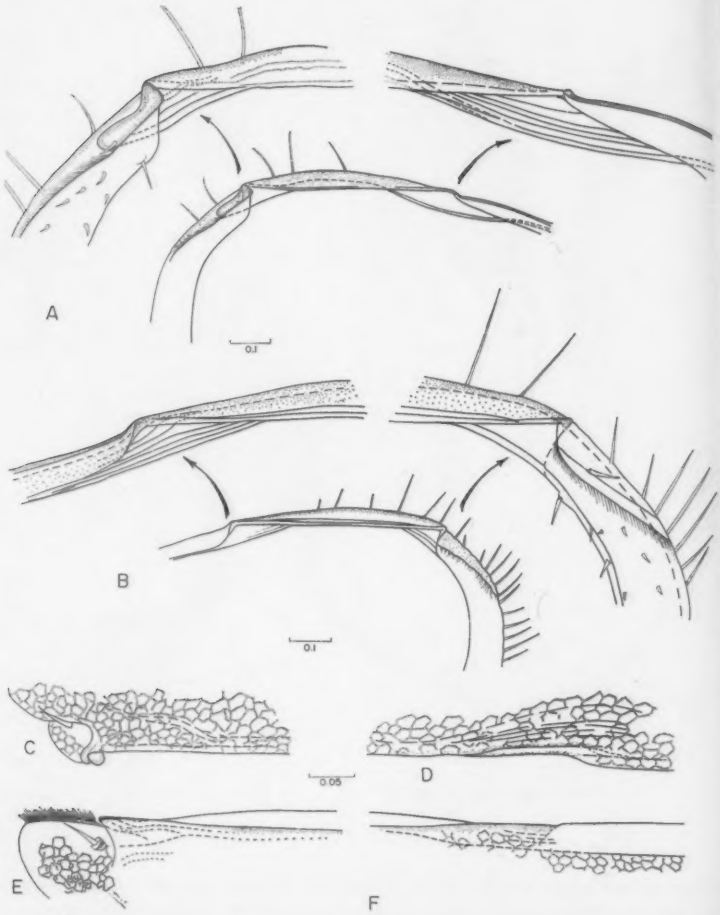


FIGURE 7.—*Euphilomedes arostrata*, new species, male: A, medial view dorsal hinge left valve with details of anterior and posterior elements; B, medial view dorsal hinge right valve with details of anterior and posterior elements; C, dorsal view posterior hinge element left valve; D, dorsal view anterior hinge element left valve; E, dorsal view posterior hinge element right valve; F, dorsal view anterior hinge element right valve. (Scale in mm.: A; B; C–F.)

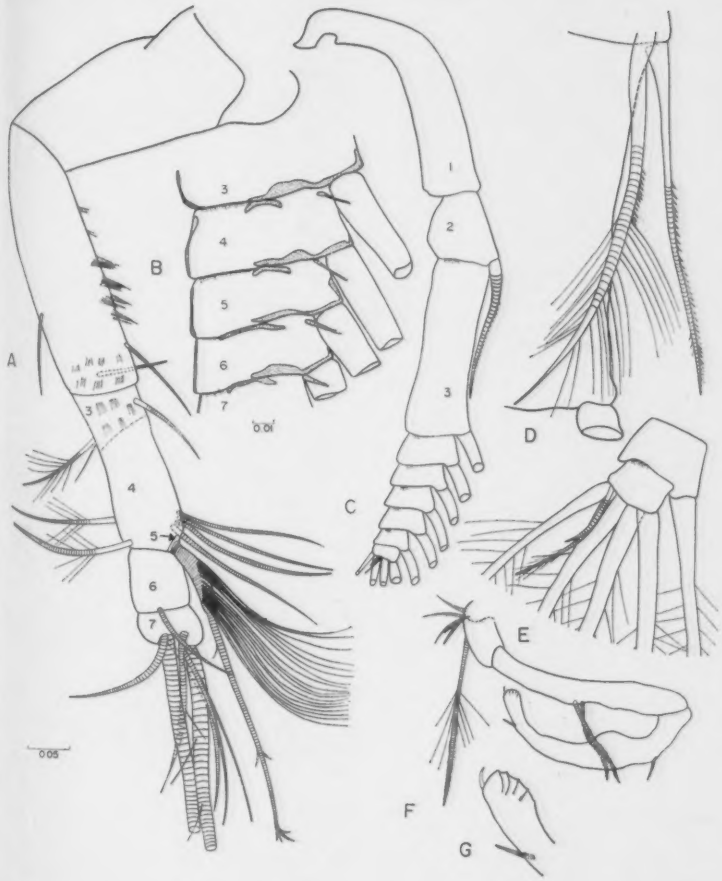


FIGURE 8.—*Euphilomedes arostrata*, new species, male: A, medial view right first antenna; B, lateral view joints 3–7 left second antenna exopodite showing sclerotized areas; C, lateral view joints 1–9 right second antenna exopodite; D, detail showing double bristle on distal corner of joint 2 left 2nd antenna; E, detail showing bristles on joints 8–9 right 2nd antenna; F, 2nd antenna endopodite; G, detail of tip of 2nd antenna endopodite. (Same scale, in mm.: A, C, F; B, D, E, G.)

FIGURE 9.—*Euphilomedes arostrata*, new species, male: A, lateral view left mandible; B, lateral view exopodite and first endopodite joint left mandible; C, maxilla (all bristles not shown); D, distal part 5th limb (all bristles not shown); E, medial view left 6th limb; F, tip of 7th limb; G, detail of bristle of 5th limb epipodial appendage; H, 7th limb and epipodial appendage of fifth limb; I, left (above) and right (below) 7th limbs. (Same scale, in mm.: A, C, E, G, I; B, D, F; H. Key: Pco=precoxale; Co=coxale; Ba=basale; E=endopodite; I–IV=endite joints.)

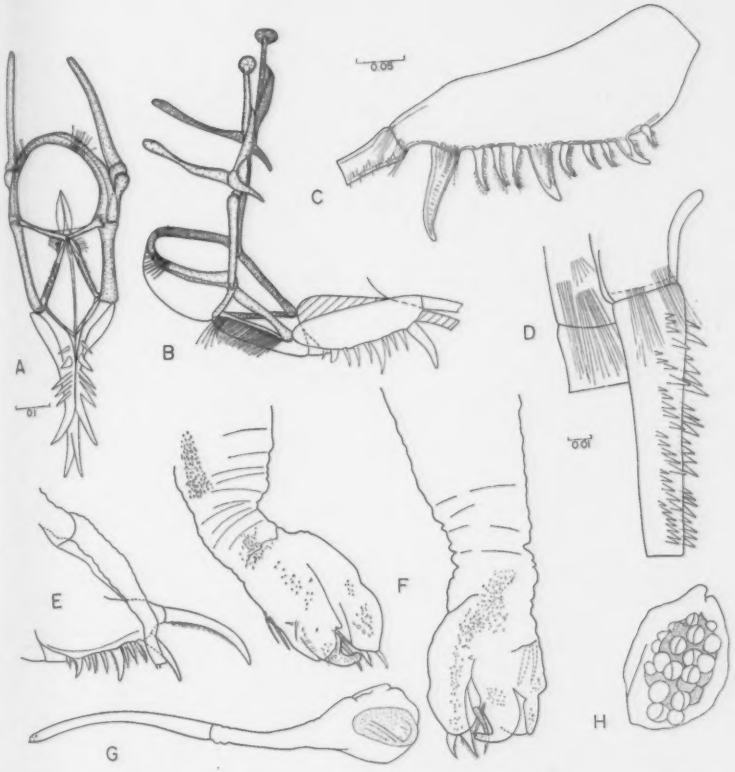
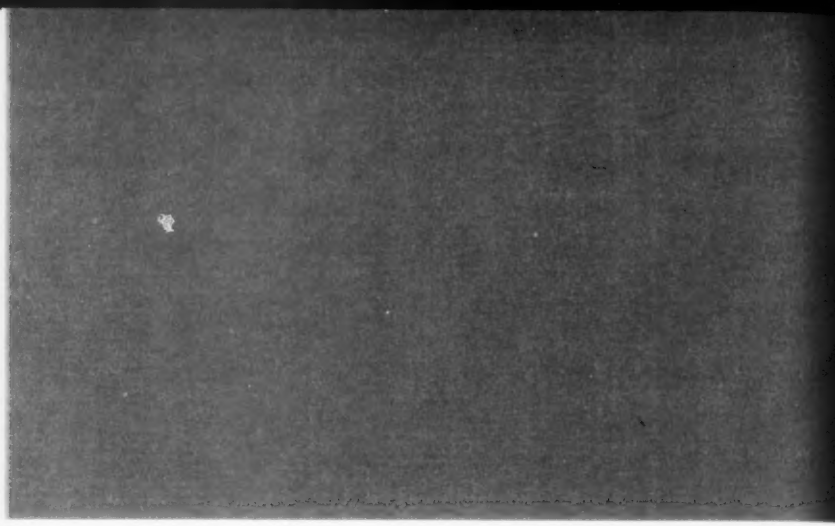


FIGURE 10.—*Euphilomedes arostrata*, new species, male: A, ventral view furca and sclerotized connectives; B, furca and sclerotized connectives viewed from slightly above lateral; C, lateral view left lamella of furca; D, part of distal tooth on left and right lamella of furca showing distribution of secondary teeth and hairs at base; E, lateral view of right lamella of furca and copulatory limb; F, distal ends of copulatory limbs; G, lateral view frontal organ and median eye; H, lateral eye. (Same scale, in mm.: A, B, E; C, G, H; D, F.)

U.S. GOVERNMENT PRINTING OFFICE: 1967